



TRANSFER AT SEA

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TRANSFER AT SEA

- **Problem:**
 - **Transfer of Personnel, Equipment, Materials from one system to another**
- **Task:**
 - **Address transfer at sea for NAVAL LIGHTERAGE**
- **At-sea Transfer Requirements**
 - **Rolling stock**
 - **RRDF to CF to beach w/o backing up or turning around**
 - **Stern drive-over**
 - **Current and future causeway ferries**

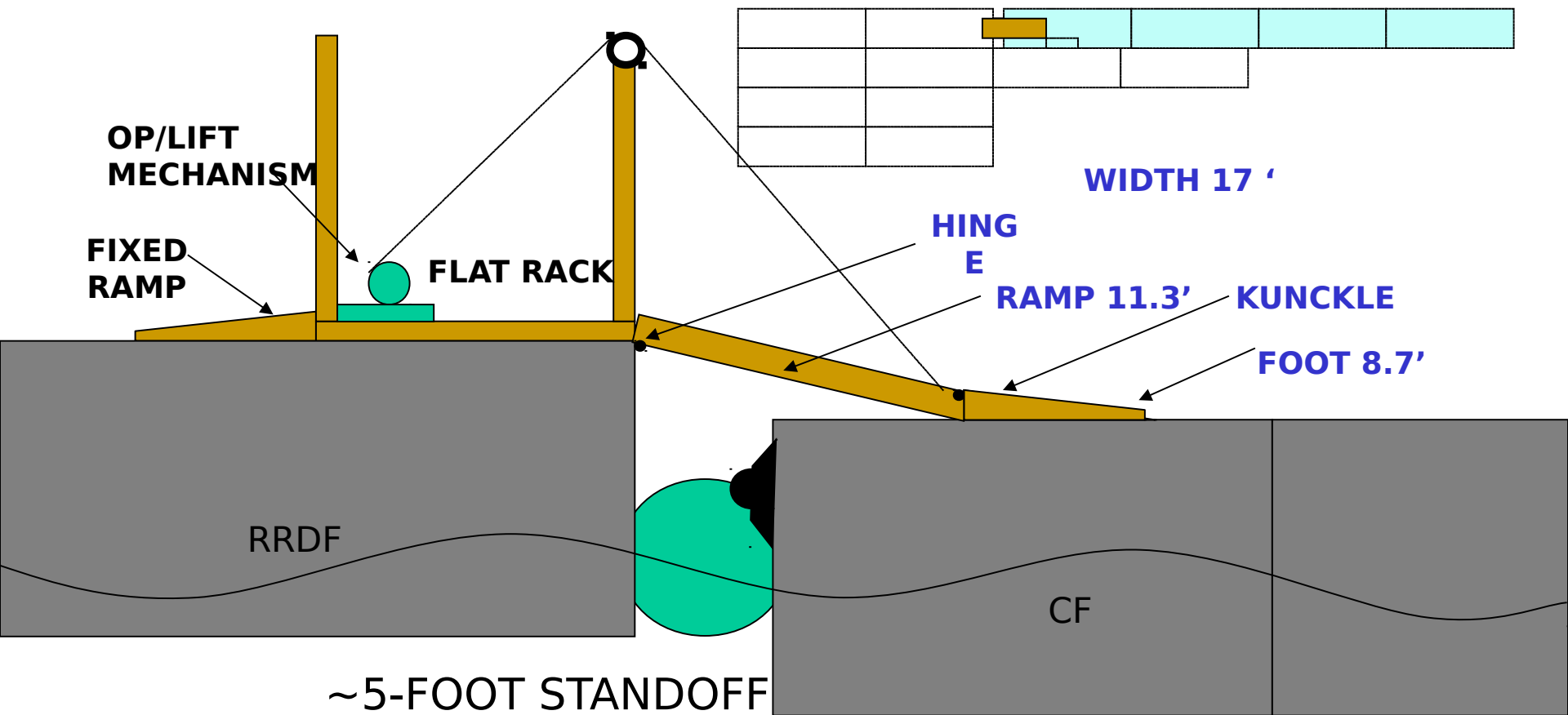


ASSUMPTIONS

- **Consider a spanning ramp**
- **RRDF freeboard = current 3'- future 6'**
- **CF freeboard (loaded) = current 1'- future 4'**
 - **Design for a +/- 2.5' variation of freeboard due to waves**
 - **Ramp vertical travel 0.5' above and 4.5' lower than RRDF**
- **Ramp slope = 7° (3' down = 24' ramp)**
- **Power self-contained (or plug- In to RRDF Crew Shelter)**
- **ISO skid (20x8x9)**
- **Max Weight 44,000 lbs**
- **Traffic Width of Ramp = 16'**
- **Worst Case Vehicles: RTCH w/o container, HET, Low Boy, Grader, Crane...**



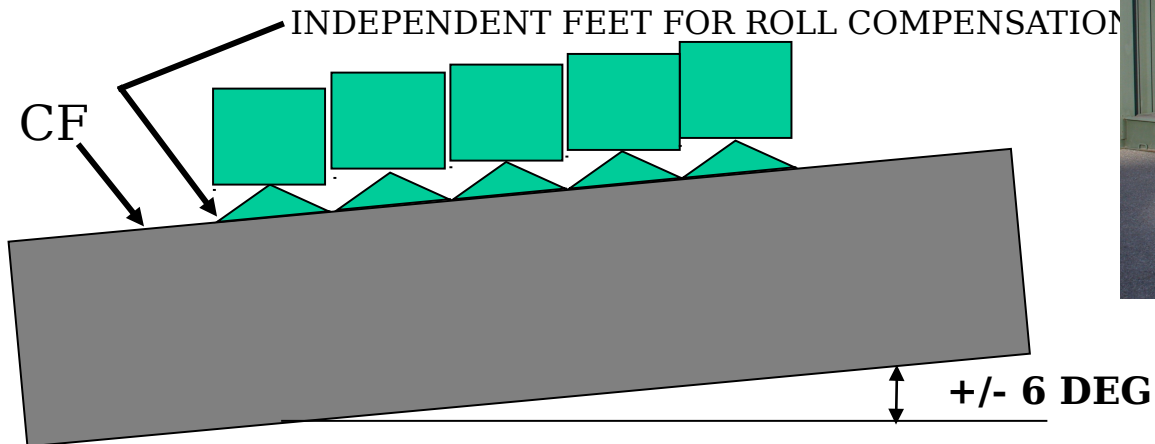
SPANNING RAMP CONCEPT





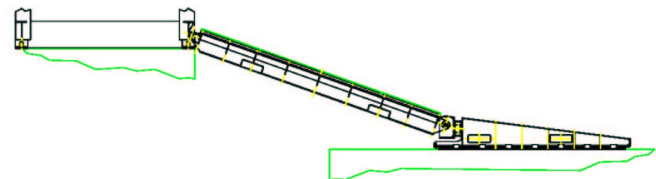
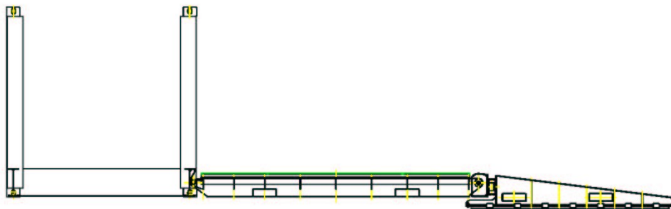
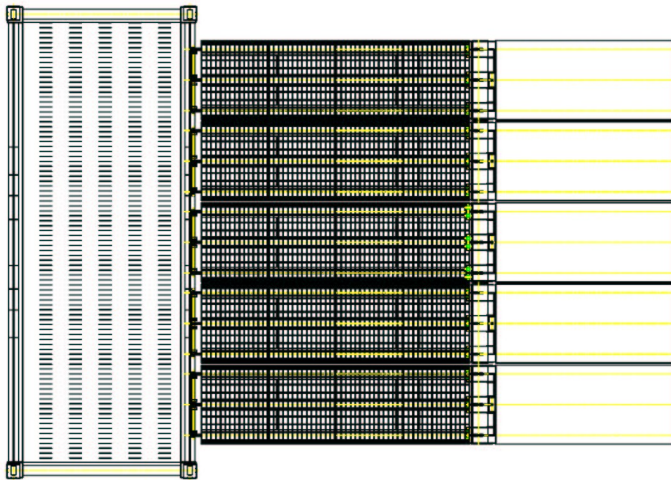
SPANNING RAMP

- INSTALL AND OPERATE IN HIGHER SEAS
 - CF HEAVE MOTION ± 2.5 FEET
 - CF ROLL MOTION ± 6 DEGREES





SPANNING RAMP





SPANNING RAMP STATUS

- Complete
 - Concept of operation
 - Concept drawings for ramp and foot.
 - Flat rack containerization concept - obtained flat rack for dimensional analysis
- Future
 - Develop operational lift mechanism
 - Develop containerization plan
 - Develop assembly, operation, and disassembly procedures
 - Build prototype and test